

In the Specification

On page 1, paragraph 1, lines 4-10, please amend the paragraph as follows:

This is a division of application Serial No. 09/510,779 Tire Belt Folding Drum filed February 23, 2000. This invention relates to a tire breaker folding drum and method where a wide breaker ply is applied to a cylindrical drum with the leading and trailing ends spliced together. Then a narrow breaker ply is wrapped around the wide breaker ply and its ends spliced. The exposed overlap side edges of the wide breaker ply are then folded up over the narrow breaker ply along the side edges of the narrow breaker ply.

On page 1, please amend paragraphs 2, 3, and 4 as follows:

Heretofore ply turn-ups have been made by two bladders positioned at each edge such as those shown in U.S. Patent No. 4,427,473. In U.S. Patent No. 5,116,449, a single bladder at each edge has been used with an outboard turnover cage to provide the turn-up. In each of these cases, the ply side edges are carried by the bladders resulting in an uncertain condition of the ply side edges after the turn-up is completed.

A breaker forming apparatus without a bladder is also shown in U.S. Patent No. 4,063,987 where a plurality of folding segments are movable radially and axially without a bladder to fold the overlap side edges of the wide breaker ply over the side edges of the narrow breaker ply. This apparatus requires radially movable segments to hold the breaker material in place during the folding operation in the event the ply material sticks to the folding segments.

Summary of the Invention

The present invention provides a drum having a plurality of circumferentially spaced apart turn-up modules positioned at the edges of the drum. Each of the modules has a nosepiece movable axially of the drum from an outer position having the same diameter as the diameter of the drum to an inner position overlapping one of the edges of the drum. A spring-loaded belt is wrapped around the nosepiece and supports the wide breaker ply overlap side edge when the wide breaker ply is applied. After the narrow breaker ply has been applied, each nosepiece is moved to an inner position overlapping the drum edge and carries the wide breaker ply overlap side edge over the side edge of the narrow breaker, pressing the overlap side edge against the

narrow breaker ply. After turn-up of the wide breaker ply overlap side edge, the nosepiece is moved axially outward and the belt is peeled off the breaker so as not to distort or stretch the material. The turn-up modules are mounted on a plurality of drum segments spaced circumferentially around the drum and are retractable with the segments for removal of the folded breaker package.

On page 2, please amend paragraphs 2, 3, 4, and 5, lines 6-21 as follows:

In accordance with one aspect of the invention there is provided a method of building a folded breaker on a tire building drum having a plurality of drum folding modules at spaced apart edge positions circumferentially of the drum with each module having a belt with a first belt end fastened to the module and a second belt end fastened to an axially movable nose member comprising:

- a. wrapping a wide breaker ply around the drum including the first belt end of each belt fastened to the module and splicing a the leading end edge and a trailing end edge of said wide breaker ply together,
- b. wrapping a narrow breaker ply having a width less than the width of the wide breaker ply around the wide breaker ply exposing an overlap edge of the wide breaker ply at each edge of the wide breaker ply and splicing a the leading end edge and a trailing end edge of the narrow breaker ply together and, characterized by,
- c. folding each overlap edge of said wide breaker ply over each side edge of the narrow breaker ply by moving the belt carrying each overlap edge over each side edge of the narrow breaker ply by moving the each nose member axially inward over each side the edge of the narrow breaker ply.

On page 4, line 28 to page 5, line 18, please make the following amendments:

In operation the drum assembly 10 is adjusted to the desired folding width W and expanded to the building diameter. The wide breaker ply 42 is wrapped around the breaker folding drum assembly 10 and a leading end and a trailing end spliced. Next, a narrow breaker ply 44 is wrapped around the wide breaker ply 42 and a leading end and a tracking end spliced. Internal air motors may be actuated causing the outer hubs 24 to move in towards the centerline

A-A of the drum assembly 10. The hubs 24 move each nosepiece 32 towards the centerline A-A of the drum assembly 10. The hubs 24 carry the nosepieces 32 on the folding modules 18 towards the centerline A-A of the drum assembly 10 by movement of the connecting shafts 26. Beveled surfaces 45 and 46 on the base piece 30 contact corresponding beveled surfaces 48 and 49 on the nosepiece 32 as the nosepiece moves axially inward and to maintain the nosepiece surface at an equal distance from the axis O-O of the drum assembly 10. This minimizes stretching of the plies during the folding process. The belt members 34 which are wrapped around the nosepiece move axially inwards and over the base piece causing the overlap edges of the wide breaker ply 42 to begin folding over the narrow breaker ply 44. During this movement there is no relative motion between the belt member 34 and the wide breaker 42 since all of the sliding action takes place between the nosepiece 32 and the belt member 34. When the nosepiece 32 completes the axially inward motion to the position shown in Fig. 4, the fold is completed. The direction of the air motors is then reversed wherein the outer hub assembly 16 moves axially outward and carries the folding modules 18 to the original positions shown in Fig. 3. During this movement each belt member 34 is peeled off each folded wide breaker ply 42 and returned to the position shown in Fig. 3.

In the Abstract

Please amend the Abstract as follows:

~~Circumferentially spaced folding modules of a tire building drum have axially movable belt lifting and conveying nose pieces which carry wide breaker ply edges over narrow breaker ply edges laid on the drum.~~

The method of folding overlap side edges of a wide breaker ply over side edges of a narrow breaker ply wrapped around the wide breaker ply on circumferentially spaced modules wherein the modules have axially movable belt lifting and conveying nose members to carry the overlap side edges of the wide breaker ply axially over the side edges of the narrow breaker ply and position the wide side edges of the wide breaker ply over the narrow breaker ply side edges. The nose members are then retracted to peel the belt away from the folded overlap side edges of the wide breaker ply.